

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

IN THE CLAIMS:

1. (Currently Amended) A diametrically expandable coupling arrangement for coupling diametrically expandable first and second tubulars, the coupling arrangement comprising:

a male thread portion on an end portion of a first tubular, the male thread portion comprising a plurality of dovetail threads made up of respective roots and opposing flanks, with the flanks being inclined at an angle of greater than 10° relative to the roots;

a nose along the end portion of the first tubular;

a female thread portion on an end portion of a second tubular, the female thread portion comprising a plurality of dovetail threads made up of respective roots and opposing flanks, and configured to threadedly mate with the threads of the male thread portion, with the flanks being inclined at an angle of greater than 10° relative to the roots; and

an undercut groove along the end portion of the second tubular adapted to receive the nose of the first tubular and to prevent the nose from separating as the first tubular elongates axially and the second tubular contracts axially while the coupling is diametrically expanded into engagement with the second tubular;

~~wherein the thread portions define a thread cut in an opposite direction to an intended direction of rotation of a rotary expansion tool and include material properties that facilitate engagement of the threads due to rotary expansion thereof.~~

2. – 3. (Cancelled)

4. (Previously Presented) The coupling arrangement of claim 1, wherein each of the opposing flanks defines stab flanks and load flanks, and both the stab flanks and the load flanks of each respective thread are inclined at substantially the same angle.

5. (Original) The coupling arrangement of claim 1, wherein the flanks are inclined at an angle of greater than 15°.

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

6. (Original) The coupling arrangement of claim 1, wherein the flanks of the male thread portion are inclined at an angle of less than 80° to the male thread portion roots.
7. (Original) The coupling arrangement of claim 1, wherein the flanks of the male thread portion are inclined at an angle of less than 75° to the male thread portion roots.
8. (Original) The coupling arrangement of claim 1, wherein the flanks of the female thread portion are inclined at an angle of less than 80° to the female thread portion roots.
9. (Original) The coupling arrangement of claim 1, wherein the flanks of the female thread portion are inclined at an angle of less than 75° to the female thread portion roots.
10. (Original) The coupling arrangement of claim 1, wherein the thread portions are parallel.
11. (Original) The coupling arrangement of claim 1, wherein the thread portions are tapered.
12. (Original) The coupling arrangement of claim 1, wherein the thread portions are stepped.
- 13-14. (Cancelled)
15. (Previously Presented) The coupling arrangement of claim 1, wherein the coupling arrangement is dimensioned to accommodate relative axial extension between the first tubular and the second tubular.

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

16. (Previously Presented) The coupling arrangement of claim 15, wherein the coupling arrangement further comprises:
a deformable seal within groove.
17. (Previously Presented) The coupling arrangement of claim 16, wherein the deformable seal is fabricated from an elastomeric material that is energised by relative axial extension of the first tubular.
18. (Original) The coupling arrangement of claim 16, wherein the deformable seal comprises a material which swells when exposed to a selected material.
19. (Previously Presented) The coupling arrangement of claim 1, wherein the groove features a rounded recess angle.
20. (Original) The coupling arrangement of claim 1, wherein the first tubular comprises at least one sealing member for sealing engagement with an opposing surface of the second tubular.
21. (Original) The coupling arrangement of claim 20, wherein the at least one sealing member is arranged and located for sealing engagement with an opposing surface adjacent a free end of the second tubular.
22. (Original) The coupling arrangement of claim 21, wherein the at least one sealing member is arranged and located for sealing engagement with a surface spaced sufficiently from the free end of the second tubular to accommodate axial shrinkage of the tubular following expansion.
23. (Original) The coupling arrangement of claim 21, wherein the at least one sealing member is arranged and located such that the end effect of the free end of the second tubular following expansion serves to energise the sealing member.

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

24. (Original) The coupling arrangement of claim 20, wherein the sealing member comprises an elastomer.
25. (Original) The coupling arrangement of claim 20, wherein at least two axially spaced sealing members are provided.
26. (Previously Presented) The coupling arrangement of claim 25, wherein at least one of the at least two sealing members is located in a groove in the first tubular.
27. (Previously Presented) The coupling arrangement of claim 25, wherein at least one of the at least two sealing members comprises a material which swells when exposed to a selected material.
28. (Original) The coupling arrangement of claim 27, wherein the at least one sealing member comprises a swelling elastomer.
29. (Previously Presented) The coupling arrangement of claim 28, wherein two or more sealing members are provided and are adapted to swell in response to contact with different respective fluids.
30. – 31. (Cancelled)
32. (Original) The coupling arrangement of claim 1, wherein the thread portions are metallic.
33. (Withdrawn) The coupling arrangement of claim 1, wherein at least some of the crests of the threads are adapted to extend axially on expansion of the coupling.
34. – 36. (Cancelled)
37. (Currently Amended) A ~~first~~ tubular string having a first tubular coupled to a

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

~~second tubular by a connection, the connection a male thread portion on an end thereof, the male thread portion comprising:~~

~~at least one a first seal member disposed around the first tubular, wherein the at least seal member comprises a material capable of swelling upon contact with a first selected material; and~~

~~a second seal member disposed around the first tubular, wherein the seal member comprises a material capable of swelling upon contact with a second selected material.~~

~~a plurality of dovetail threads made up of respective roots, crests and opposing flanks, with the flanks being inclined; and~~

~~a nose along the end portion of the first tubular;~~

~~and wherein:~~

~~the plurality of dovetail threads of the first tubular are configured to threadedly mate with a plurality of dovetail threads on an end portion of a second tubular; and~~

~~the nose of the first tubular is configured to be received by an undercut groove along the end portion of the second tubular so as to prevent the nose from separating after the first tubular has been radially expanded into engagement with the second tubular.~~

38. (Previously Presented) A first tubular having a female thread portion on an end thereof, the female thread portion comprising:

a plurality of dovetail threads made up of respective roots, crests and opposing flanks, with the flanks being inclined at an angle of greater than 10° relative to the roots; and

an undercut groove;

and wherein:

the plurality of dovetail threads of the first tubular are configured to threadedly mate with a plurality of dovetail threads on an end portion of a second tubular, the plurality of dovetail threads of the second tubular being male threads also made up of respective roots, crests and opposing flanks and the second tubular having a sealing member capable of swelling upon contact with a selected material; and

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

the undercut groove of the first tubular is configured to receive a nose along the end portion of the second tubular so as to prevent the nose from separating after the second tubular has been diametrically expanded into engagement with the first tubular.

39. – 46. (Cancelled)

47. (Currently Amended) An expandable coupling arrangement for first and second expandable tubulars, the coupling arrangement comprising:

a male thread portion on an end portion of a first tubular;

a nose along the end portion of the first tubular; and

a female thread portion on an end portion of a second tubular, the second tubular defining an undercut groove, the groove and the nose configured to have a pre-expanded relative position and a post-expanded relative position, wherein the pre-expanded relative position, the nose is spaced apart from the groove at a first axial distance and in the post-expanded relative position the nose is spaced apart from the groove at a smaller second axial distance ~~adapted to receive the nose of the first tubular, wherein the undercut groove is configured to receive and retain the nose during radial expansion of the first tubular and the second tubular by a rotary expansion tool.~~

48. (Currently Amended) A diametrically expandable coupling arrangement for coupling diametrically expandable first and second tubulars, the coupling arrangement comprising:

a male thread portion on an end portion of a first tubular;

a nose along the end portion of the first tubular;

a female thread portion on an end portion of a second tubular, the female thread portion being configured to threadedly mate with the threads of the male thread portion;

an undercut groove along the end portion of the second tubular adapted to receive the nose of the first tubular and to prevent the nose from separating as the first tubular is diametrically expanded into engagement with the second tubular; and

~~at least one~~ a first sealing member and a second sealing member disposed within the coupling assembly, wherein the first ~~at least one~~ sealing member comprises a

Page 7

400375_1

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

material capable of swelling when exposed to a selected fluid and the second sealing member comprises a material capable of swelling when exposed to a different selected fluid.

49. – 64. (Cancelled)

Please add the following new claims:

65. (New) A threaded connection comprising:
a pin member having a plurality of dovetail threads and an end portion; and
a box member having a plurality of dovetail threads and a recess, the recess and the end portion having a first relative position prior to expansion of the connection and a second relative position following expansion of the connection, whereby in the first position the end portion is spaced apart from the recess at a first axial distance and in the second position the end portion is spaced apart from the recess at a smaller second axial distance.
66. (New) The threaded connection of claim 65, wherein the pin member axially elongates relative to the box member upon expansion of the threaded connection.
67. (New) The threaded connection of claim 65, wherein the box member axially contracts relative to the pin member upon expansion of the threaded connection.
68. (New) The threaded connection of claim 65, further includes a seal member disposed in the recess, wherein the seal member is deformed upon movement of the end portion and the recess from the first relative position to the second relative position.
69. (New) The threaded connection of claim 68, wherein the seal member comprises a material capable of swelling upon exposure to a selected material.

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

70. (New) The threaded connection of claim 65, wherein at least some of the threads are adapted to extend axially on expansion of the coupling.

71. (New) A method for expanding a threaded connection comprising:
providing a pin member having a plurality of dovetail threads and an end portion;
providing a box member having a plurality of dovetail threads and a recess, the end portion and the recess configured to have a pre-expanded relative position and a post-expanded relative position;

connecting the pin member and the box member to form the threaded connection; and

expanding the threaded connection, thereby moving the end portion and the recess from the pre-expanded relative position to the post expanded relative position.

72. (New) The method of claim 71, wherein a rotary expander expands the threaded connection.

73. (New) The method of claim 71, wherein the end portion is spaced apart from the recess at a first axial distance in the pre-expanded relative position and smaller second axial distance in the post-expanded relative position.

74. (New) The method of claim 71, axially elongating a portion of the pin member as the threaded connection is expanded.

75. (New) The method of claim 71, axially contracting a portion of the box member as the threaded connection is expanded.

76. (New) The method of claim 71, energizing a seal member as the end portion and the recess move from the pre-expanded relative position to the post-expanded relative position.

77. (New) The connection of claim 37, wherein the first selected material is water.

PATENT

Atty. Dkt. No. CRUI/0020 (MRKS/0093)

78. (New) The connection of claim 37, wherein the second selected material is oil.

79. (New) The connection of claim 37, wherein each tubular includes a plurality of dovetail threads made up of respective roots, crests, and opposing flanks, with the flanks being inclined.

80. (New) The connection of claim 37, wherein the first tubular includes a nose, whereby the nose is configured to be received by an undercut groove of the second tubular to prevent separation of the tubulars upon expansion of the connection.